

Work Order ID 62470

Thursday, September 30, 2010 1:04:22 PM

Page 1

Item ID: D3624-2

Accept

Setup Start

Revision ID:

Stop

Item Name: Bubble Window

Start Date: 10/1/2010 Start Qty: 1.00

Cust Item ID:

Required Date: 10/8/2010 Req'd Qty: 1.00

Customer:

Reference:

Approvals: Process Plan: MF Date: 10-9-30 Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start
Stop

| Sequence ID/ Work Center ID | Operation Description | Set Up/ Run Hours | Tool ID | Tool # | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|--------------------------------|---|----------------------|---------|--------|--------------|---------------|---------------|------------------|---|
| Draw Nbr | Revision Nbr | | | | | | | | |
| D3624 | Rev D | | | | | | | | |
| 100 | HAND FINISHING THERMOFORMING | 0.00 | | | | (X2) | | | BB 10/10/27 D.L. |
| Thermoform | Memo | 0.00 | | | | (X5) | | | 10/10/12 |
| Thermoforming Machine | Cut Blanks to 30" by 48" | | | | | | | | |
| 110 | THERMOFORMING MACHINE | 0.00 | | | | (X2) | | | BB 10/10/27 D.L. |
| Thermoform | Memo | 0.00 | | | | (X5) | | | 10/10/12 |
| Thermoforming Machine | Thermoform as per Dwg. D3624 and Folio FTA 004 <input type="checkbox"/> Dwg. Rev. <u>D</u> <input type="checkbox"/> Folio Rev. <u>D</u> | | | | | | | | |
| 120 | QC2- Inspect parts off machine FAI/FAIB | 0.00 | | | | (X2) | | | BB 10/10/27 D.L. |
| QC | Memo | 0.00 | | | | (X1) | (X3) | | 10/10/12 P.T.O. 10/10/27 P.T.O. → |
| Quality Control | Check Surface finish for undesired marks, voids, dimples etc. Check depth of bubble to ensure conformity to drawing tolerances. | | | | | | | | |

| W/O: | | WORK ORDER CHANGES | | | | | |
|----------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| 10/10/27 | 120 | | | | | | |
| | | | | | | | |

Part No: D3624-2 PAR #: N/r Fault Category: Thermal Form NCR: Yes No DQA: 12 Date: 10/11/08
 Resolution: Scrap Disposition: Scrap QA: N/C Closed: OK Date: 10/11/08

| NCR: <u>62470</u> | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|-------------------|------|--|-----------------------------|---|----------------|---------------------------|--------------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| 10/10/27 | 120 | Windows Too thin Variation in raw sheet stock. | CP 10.10.28 OS/042 | Scrap 2 nd Windows. Order .188 sheet for future orders.. | Wh 10/10/27 | BB 10/10/29 | CP 10.10.28 OS/042 | S 10/10/28 |
| 10/10/27 | 120 | Window Too Thin Variation in sheet stock. | CP 10.10.28 OS/042 | Scrap 1 Window | BB 10/10/27 | Ph 10/10/29 | CP 10.10.28 OS/042 | S 10/10/28 |
| | | | | | | | | |

NOTE: Date & initial all entries

Work Order ID 62470

Thursday, September 30, 2010 1:04:22 PM

Page 2

Item ID: D3624-2

Accept

Revision ID:

Item Name: Bubble Window

Start Date: 10/1/2010 Start Qty: 1.00

Required Date: 10/8/2010 Req'd Qty: 1.00




Reference:

Cust Item ID:

Customer:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start
Stop

| Sequence ID/ Work Center ID | Operation Description | Set Up/ Run Hours | Tool ID | Tool # | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|--|---|----------------------|---------|--------|--------------|---------------|---------------|------------------|-----------------|
| 130  Thermoform Thermoforming Machine | HAND FINISHING THERMOFORMING Memo 1) Trim to Finished Dimensions <input type="checkbox"/> 2) Buff out any light scratches or blemishes <input type="checkbox"/> 3) Etch in part number and batch number | 0.00 0.00 | | | | (x2) | | | Ph. 10/10/14 |
| 140  QC Quality Control | QC2- Inspect parts off machine FAI/FAIB Memo | 0.00 0.00 | | | | (x1) | | | BB 10/10/27 |
| 150  QC Quality Control | QC5- Inspect part completeness to step on W/O Memo | 0.00 0.00 | | | | (x1) | | | BB 10/10/28 |

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries

Work Order ID 62470

Thursday, September 30, 2010 1:04:22 PM

Page 3

Item ID: D3624-2

Accept

Setup Start

Revision ID:

Stop

Item Name: Bubble Window

Start Date: 10/1/2010 Start Qty: 1.00

Cust Item ID:

Required Date: 10/8/2010 Req'd Qty: 1.00

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

160

Identify as per dwg & Stock Location: *176*

0.00



Packaging

Memo

0.00

Packaging

Crup/29 (1)

170

QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

Quality Control

10/11/10
10-10-29
(1)

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries

Picklist Print

Thursday, September 30, 2010 1:04:21 PM

Page 1

Work Order ID: 62470



Parent Item: D3624-2



Parent Item Name: Bubble Window

Start Date: 10/1/2010

Required Date: 10/8/2010

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP A Thermoform in house 6/27/2007 DL
IPP B. Revised due to corrupt operating Program. 7/23/2007 DL
IPP C. Dwg. Rev. change 7/30/2007
IPP D. Dwg. Rev. Updated 4/25/2008 verified by:DD

| Component Item ID/ Item Name | Replacement Item ID | Mfg/ Purch | Bin Item | Primary Location | Last Location | Route Seq ID | Unit of Measure | Qty on Hand | Qty per Kit | Total Qty | Qty Issued | Date Issued | Status |
|---------------------------------|------------------------|---------------|-------------|---------------------|------------------|-----------------|--------------------|----------------|-------------|--------------|---------------|----------------|--------|
|---------------------------------|------------------------|---------------|-------------|---------------------|------------------|-----------------|--------------------|----------------|-------------|--------------|---------------|----------------|--------|

MACRYLICS.177

Purchased

No

sf

239.8672

10

10.00500



0.177" PLEXIGLAS G CLEAR CAST ACRYLIC SHEET



OK 10/10/12

Location

Loc Qty

Loc Code

therm

239.8672

107291

24

111315

54

115234

161.8672

23.26 sq ft TOTAL
+ 23.26 sq ft.
OK 10/10/12
OK 10/10/12

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|--------------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries

| | | | |
|-----------------------------------|--------|--------------|---------|
| DART AEROSPACE LTD | | Work Order: | 62470 |
| Description: Bubble Window (A119) | | Part Number: | D3624-2 |
| Inspection Dwg: D3624 | Rev: D | Page 1 of 1 | |

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

THERMOFORMING SECTION

| Description | Accept | Reject | Method of Inspection | Comments |
|---|--------|--------|----------------------|----------|
| Bubble Depth within tolerance | ✓ | | | |
| Shape Definition | ✓ | | | |
| Material imperfections such as bumps, cracks, voids, scratching | ✓ | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

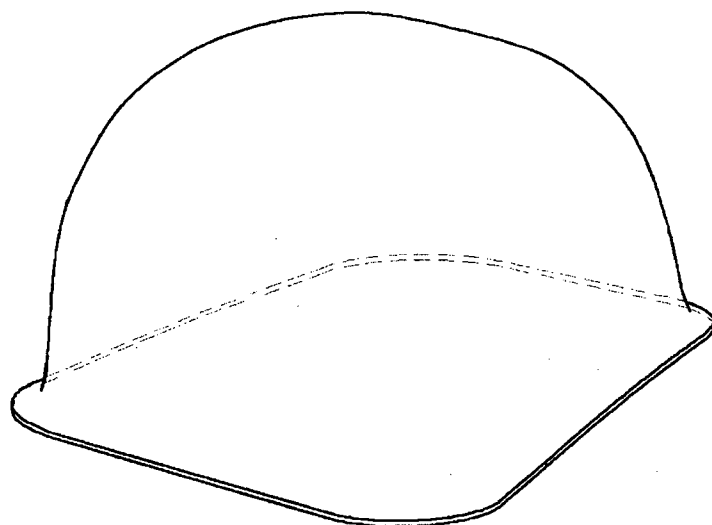
| | |
|------------------------|-----------------------|
| Measured by: <u>BB</u> | Date: <u>10/10/27</u> |
|------------------------|-----------------------|

TRIMMING SECTION

| Drawing Dimension | Tolerance | Actual Dimension | Accept | Reject | Method of Inspection | Comments |
|-------------------|-------------|------------------|--------|--------|----------------------|----------|
| 11.0 | +/-0.25 | 11.125 | ✓ | | | |
| 3.0 | 0.095 Min | .098 | ✓ | | | |
| 8.5 | 0.058 Min | .058 | ✓ | | | |
| 3.0 | 0.060 Min | .099 | ✓ | | | |
| 8.5 | 0.042 Min | .063 | ✓ | | | |
| 2.5 | 0.030 Min | .031 | ✓ | | | |
| 92° | +/-0.2° Min | .93° | ✓ | | | |
| 90° | +/-0.2° Min | .91° | ✓ | | | |
| 0.85 | Min | .098 | ✓ | | | |
| 0.70 | Min | .080 | ✓ | | | |
| | | | | | | |
| | | | | | | |

| | |
|------------------------|-----------------------|
| Measured by: <u>BB</u> | Date: <u>10/10/27</u> |
| Audited by: <u>OP</u> | Date: <u>10.10.28</u> |
| Prototype Approval: | Date: |

| Rev | Date | Change | Revised by | Approved |
|-----|----------|-----------|------------|--------------------|
| A | 08.11.28 | New Issue | KJ/DL | <u>[Signature]</u> |



62470

D3624-2 BUBBLE WINDOW

NOTES:

- 1) MATERIAL: PLEXIGLAS G CLEAR CAST ACRYLIC SHEET PER LP-391 TYPE 1 GRADE C
OR POLYCAST II CLEAR ACRYLIC SHEET PER MIL-P-5425
0.177 TO 0.188 THICK (STOCK, REF DART SPEC M-ACRYLIC-S)
 - 2) FINISH: NONE
 - 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
 - 4) UNITS: INCHES UNLESS OTHERWISE NOTED
 - 5) BREAK SHARP EDGES: 0.010 TO 0.020 MAX
 - 6) IDENTIFICATION: ENGRAVE P/N & B/N ON FLANGE WITHIN 0.25" OF BUBBLE. USE 0.125" LETTERS TO MAX DEPTH OF 0.005".
 - 7) WEIGHT: 2.95 lbs
 - 8) FORM PER DT8953 AND QSI 022
- FORMING PROCESS: (a) DRAPE OVER DT8953 MOLD
(b) HEAT TO 290°F
(c) VACUUM FORM TO SPECIFIED HEIGHT
(d) LET COOL TO AT LEAST 100°F BEFORE HANDLING
(e) TRIM FLANGE USING DT8954

| D | REDRAW, REFORMAT, RMV SHAPE TOOL, ADD SEC B-B (2C8) & C-C (2C3), ADD FLANGE & WALL & WALL ANGLE DIMS, UPDATE MATL SPEC (1B8) | CP | 08.03.12 |
|------------|--|----|----------|
| C | ADD TOOL TO CONTROL BUBBLE SHAPE | CP | 07.06.27 |
| B | 11.0" DEPTH WAS 12.0" | CP | 07.05.24 |
| A | NEW ISSUE | CP | 07.06.27 |
| REV. | DESCRIPTION | BY | DATE |
| DESIGN | | | |
| DRAWN | | | |
| CHECKED | | | |
| MFG. APPR. | | | |
| APPROVED | | | |
| DE APPR. | | | |
| DATE | 08.03.12 | | |

DART AEROSPACE LTD
HAWKESBURY, ONTARIO, CANADA

DRAWING NO. REV. D
D3624 SHEET 1 OF 2
TITLE SCALE
BUBBLE WINDOW (A119) NTS

COPYRIGHT © 2007 BY DART AEROSPACE LTD
THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD

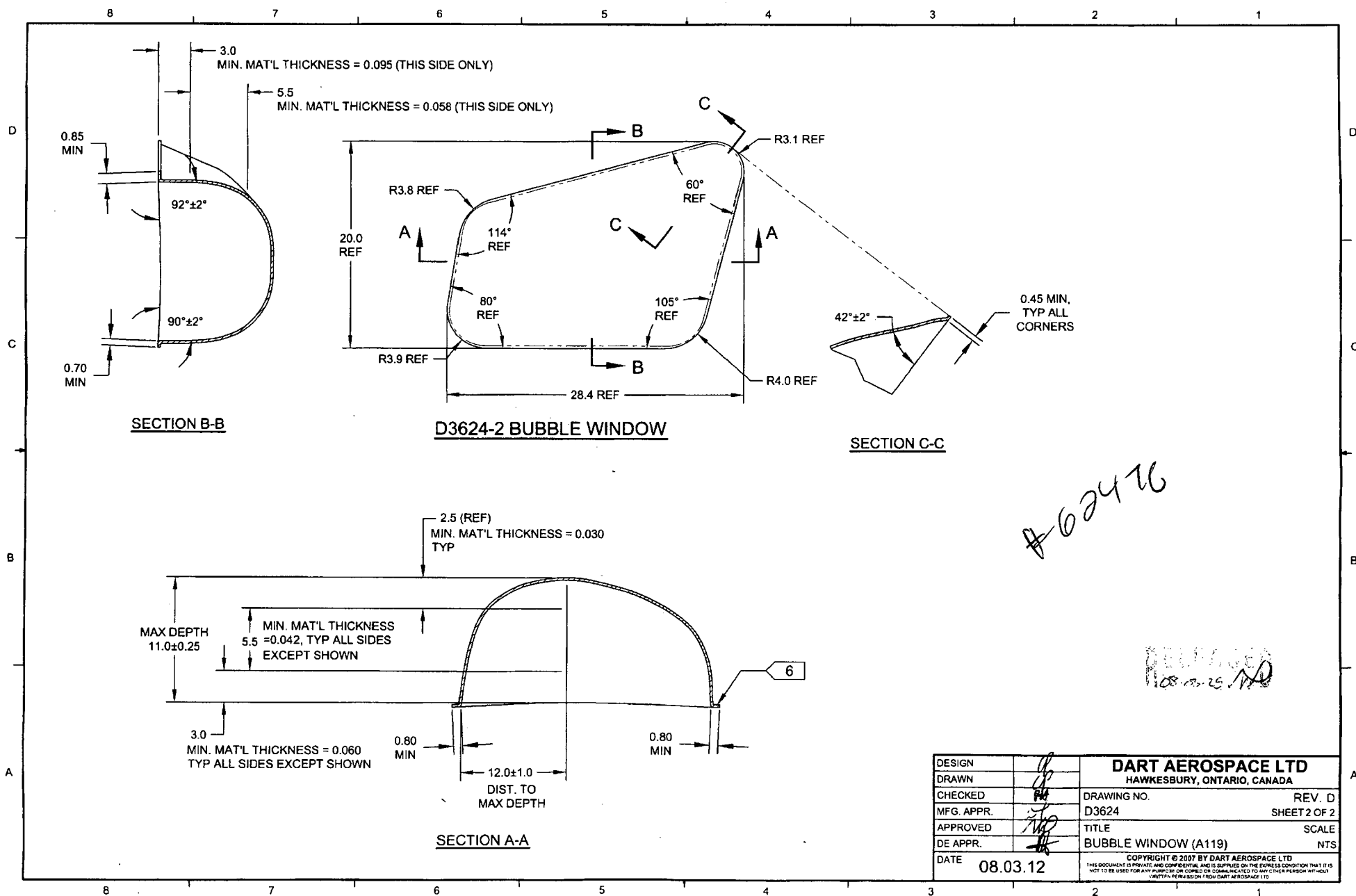
| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries



| | | | |
|------------|----------|---|--------------|
| DESIGN | | DART AEROSPACE LTD | |
| DRAWN | | HAWKESBURY, ONTARIO, CANADA | |
| CHECKED | | DRAWING NO. | REV. D |
| MFG. APPR. | | D3624 | SHEET 2 OF 2 |
| APPROVED | | TITLE | SCALE |
| DE APPR. | | BUBBLE WINDOW (A119) | NTS |
| DATE | 08.03.12 | <small>COPYRIGHT © 2007 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD</small> | |

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries